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13. ABSTRACT ***(Maximum 200 Words)***

During the AP1, the Center for Tropical Forest Science (CTFS) and its partner the Bioresources Development and Conservation Programme - Cameroon (BDCP-C), conducted plant inventory work at the ICBG Korup Forest Dynamics Plot. The enumeration of the first 25-ha of the large Korup Forest Dynamics Plot was finished in May 1998. The first analytical results were completed for the first hectare of KFDP, as well as ethnobotanical identifications. A topography map has been created for the first 25-ha. Many researhers within the project have traveled to collaborate on plot work, data entry, data analysis, and plant identification. A series of small biodiversity plots in Cameroon and Nigeria were established by the Smithsonian Monitoring and Assessment of Biodiversity (SI/MAB) program. The SI/MAB program also held training courses in Cameroon and Nigeria.

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FOREWORD

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V. Introduction

The AP1 program of the Drug Development and Conservation of Biodiversity in West and Central Africa funds the studies on forest dynamics and demographics conducted by two Smithsonian organizations, the Monitoring and Assessing Biodiversity Program (SI/MAB) and the Center for Tropical Forest Science (CTFS). SI/MAB established five small 1-ha forest plots in Nigeria and six in Cameroon to better understand plant diversity throughout these two countries and, in conjunction with their global database from similar small plots, throughout the world. SI/MAB conducted training courses in Cameroon and Nigeria to help train local scientists in conservation techniques. The Center for Tropical Forest Science is establishing a 50-ha Forest Dynamic Plot (FDP) in order to look at forest plant diversity and dynamics in large spatial and, eventually, temporal scales. Within the 50-ha plot, all trees over 1 cm diameter are tagged and identified to species. Five years after the initial census of the 50 ha, the plot will be recensused to investigate how the forest has changed. Data gathered from repeated censuses allow explorations into the maintenance of diversity and dynamics of the forest. CTFS now has fifteen FDPs using the same methodology throughout the tropics in Asia, Latin America, and Africa.

VI. Research and Training Accomplishments

A. SI/MAB

1. Small Plot Series

To date, the Smithsonian Monitoring and Assessment of Biodiversity (SI/MAB) program has worked with local partners to establish six small plots in Cameroon, and five in Nigeria. The first site was established in Cameroon, at Camp Saker, Mabeta-Moliwe Forest, as part of an SI/MAB training course held in November 1996. One plot was established in the Bimbia area, in the southern portion of the reserve. Three further plots were established in the Campo Ma'an Faunal Reserve, South Province, and an additional two at the Ejagham Forest Reserve SW Province. In Nigeria, five plot were established at the Cross River State National Park.

The plots established at Ejagham and Campo provided good comparative data on the representative forests habitats of the region. In general, Cameroon's forests are of a high diversity at species, genus and family levels and compare favorably with other sites in the tropics. A preliminary evaluation of plant uses revealed that around 30% of all taxa in each five 1-ha plots have an actual or potential economic value, on both indigenous and commercial scales of use. Both at Campo and Ejagham the percentage of economic species recorded represented 30.2% of all recorded named species, with 43 and 33 economic species respectively. When compared to other sites where similar studies have been carried out, the percentage of economic species recorded as a proportion of total

species in Cameroon appeared low. A more complete evaluation of the uses needs to be done in conjunction with Associate Program 5.

The Nigerian plot data was partially processed and analyzed. In the period after the end of this grant, preliminary comparisons will be made between the Nigeria sites and those in Cameroon, and help define the areas where further small biodiversity plots should be established in the two countries.

2. Training Courses

In November 1996, 30 Cameroonian students and resource managers participated in the SI/MAB course held at the Camp Saker Retreat Facility located in Bimbia, Cameroon, approximately 30 minutes from Limbe. This group consisted of individuals representing 12 different organizations. Ten instructors from the U.S., Mexico, and Cameroon were present to share information on the SI/MAB methodology, terrestrial arthropod surveying, Cameroon vegetation, protected areas of Cameroon, and Geographical Information Systems (GIS). As part of the course, a 1-ha plot was established.

A further training course was help in April 1997, at the BDCPC facilities in Nsukka, Nigeria. The goals of the course were the same as those for the Cameroon course. The group consisted of 20 individuals from 15 organizations, in Nigeria, Cameroon, Gabon, and Kenya. Ten instructors from Nigeria, U.S., and U.K. provided training on Nigerian vegetation, protected areas in Nigeria, biodiversity monitoring protocols, and data analysis and interpretation. As part of the course, a 1-ha plot was established in the Cross Rivers National Park in south-east Nigeria.

Additional training has been provided to 2 participants from Cameroon and 2 from Nigeria at the Smithsonian Institution's International Measuring and Monitoring Biodiversity Course in Front Royal, Virginia. These participants were actively involved in the organization of the regional courses are now key players in the implementation and monitoring of biodiversity in Cameroon and Nigeria.

B. Large-scale CTFS Korup Forest Dynamics Plot

1. Topographic survey and enumeration

During the first field season of the ICBG Korup Forest Dynamics Project (January - May 1997), 12.32 ha were topographically surveyed by one team under the supervision of George Chuyong and 6.32 hectares were enumerated by two teams led by Emmanuel Jato and Moses Sainge. During the 1997-98 field season, the pace increased with an improved surveying compass and two additional enumeration teams (four teams total). The survey and enumeration teams have made great progress, completing 32.68 hectares and 25.0 hectares respectively this season through September 30, 1998. Total progress at KFDP since the inception of the plot is summarized in Table 1 below.

The topographic surveying team completed more of the survey than was expected in the time frame of the grant. It was quite an accomplishment to be ahead of schedule because survey work was slowed by the need to replace marker poles washed out along the stream during the wet season. (Solid foundations have now be constructed for

vulnerable poles.) Using a theodolite and surveying compass, the team has been placing corner stakes demarcating 20m x 20m quadrats and taking elevation measurements at each 5m interval to form subquadrats. When completed in the next field season, the 50-ha plot will have 1250 quadrats and 20,000 subquadrats.

With the assistance of Dr. Richard Condit, CTFS/Smithsonian scientist, survey readings were recalibrated at the start of the field season. Dr. Condit and the Cameroonian field leaders also made crude topographic maps on site and a detailed map of the streams and trails in the surveyed area. Drs. Condit and Thomas then had the survey data entered and digitized in order to complete a topographic map of the first 25 ha. This map was made by Dr. Condit, David Kenfack (Field Supervisor), and Dr. George Chuyong (Field Supervisor) in August (Figure 1).

The enumeration teams also advanced quickly during the grant, despite the difficult terrain. The labor-intensive activity of enumeration involves mapping, tagging, measuring, and recording data for every tree over 1cm in diameter. With 25 ha enumerated as of the end of September 1998, the total number of stems censused was 164,510. The efficiency of the teams has been particularly impressive in light of the extreme density of the plots; the mean number of stems per ha is 6,580. In fact, some of the hectares include more stems than the anticipated maximum of 7000 (for example, 7152, 7758, and 7508 for hectares 20, 21, and 22). Completion of enumeration of the entire 50-ha plot is planned for the end of the next field season.

Innocent Buama Leingola of the Ituri Forest Large Plot Project in the Democratic Republic of Congo visited Korup from May 16-22, 1998 in order to train the field staff in enumerating lianas. Using quadrat 08/00 for demonstration, he found forty-nine liana individuals in twelve different species. With this demonstration as an impetus, the project leaders are preparing to propose a liana enumeration of the entire plot.

A data checking team was initiated during the summer of 1997 and has been revisiting every quadrat to check for errors and estimate sampling precision. For each quadrat, 25% of stems within one randomly chosen 10m x10m subquadrat have been resampled. Data for 24 ha was rechecked under the grant.

2. Botanical program

The botanical identification team under the direction of David Kenfack is classifying each individual tree to species, including juveniles and non-flowering adults. Careful attention is being paid to accurate identification of trees and coding on the datasheets. By the close of September 1998, the plants in 16 ha had been identified.

To ensure accuracy of the identifications, less than half of the specimens are identified in the field. Voucher specimens of unidentified species within the plots and fertile specimens at the plot have been collected and dried, first in the locally constructed dryer at Chimpanzee Camp and later in an electric dryer at KFDP headquarters in the nearby town of Mundemba. (The development of the Korup Herbarium will facilitate treatment and preservation of KFDP specimens.) After being sorted to morphospecies, the specimens have then been taken to our project herbarium for comparison with growing collections or, if necessary, to Herbier National du Cameroun, Limbe Botanic Garden, Missouri Botanical Garden, or Royal Botanic Gardens, Kew, United Kingdom.

The program has continued through the dry and wet seasons. In August 1997, Mr. Kenfack spent two weeks in the National Herbarium at Yaounde to compare the vouchers with herbarium specimens. During his stay, 101 specimens were identified to species and the identification of 80 others confirmed. Mr. Kenfack also recently attended a training course on the use of BRAHM (Botanical Research and Herbarium Management System), a computer package developed for professional botanists and herbarium managers among other biodiversity specialists. In August 1998, Mr. Kenfack spent ten days at the Missouri Botanical Gardens. There Kenfack studied plant material sent from KFDP under the guidance of Roy Gereau. The botany team is expected to finish 25 ha by the end of this September.

3. Status summary [As of September 30, 1998]

Topographic survey	32.68 ha (992 quadrats)	
Enumeration	25 ha (625 quadrats)	164,510 stems tagged, measured & mapped
Botanical program	16 (400 quadrats)	
Data checking	24 ha (600 quadrats)	
Botany checking	4.84 ha (121 quadrats)	
First hectare	7502 individuals (≥1cm dbh)	283 species

4. Data entry and management

Data entry for KFDP began in November 1997 using a laptop brought by Dr. Duncan Thomas. Dr. Thomas trained Julius Mbotiji, the KFDP Project Assistant, in the data entry methodology. The computer was taken back to the US for completion of initial analysis (see below), but three other laptops purchased with ICBG funds were transferred to KFDP in March and one desktop computer will be transferred in September to conduct on-site training, data entry and analysis. During the wet season of 1998, Julius Mbotiji, with the assistance of Muyamah Fidelis, entered data into the site's new computers.

Nicolas Songwe, David Kenfack, and George Chuyong recently traveled to Panama to work with scientists at the Barro Colorado Island (BCI) plot. Dr. Richard Condit taught Songwe, Kenfack, and Chuyong how to program with FoxPro, and together they ran analyses on the first hectare of data from the Cameroonian plot. Songwe, Kenfack, and Chuyong also entered the remaining survey data, and, with Dr. Condit, completed a topography map of the 25 ha that have been surveyed and enumerated (Figure 1). Finally, Suzanne Loo de Lao, the CTFS Data Manager, wrote map digitizing and data entry programs for Kenfack and Chuyong, and taught them how to use these programs.

5. Preliminary analysis of forest data

Based on preliminary results of the Korup Forest Dynamics Plot census data, KFDP will be monitoring over 300,000 individual trees and an estimated 500-600 species when the full 50 ha are completed in 1999. This may be as many as half of all woody

species in Cameroon, including some species never before identified. In addition to an extensive taxonomic inventory, KFDP database will represent the most intensive resource on tree demography and distribution patterns for a single forest community in all of Africa.

Though unique analytical opportunities afforded by the large size of the plot will not be available until next year, some preliminary, smaller-scale analyses have been possible using data from the first fully enumerated and identified hectare in KFDP. One of the most striking original findings is that the Korup plot has quite a dense and diverse forest, largely due to the smaller-sized trees. Within the first hectare, there are 7502 trees > 1 cm dbh. This density is very high compared to identical Forest Dynamics Plots in Panama (4880 trees/ha), Peninsular Malaysia (6700 trees/ha), and Ecuador (6000 trees/ha). The high density in KFDP is primarily due to the large number of small-sized trees (1-10 cm dbh). The larger-sized trees make up a relatively small proportion of the stand. For example, trees > 10 cm dbh comprise only 6% of the trees in the 1 ha of KFDP, compared to 9% in the Forest Dynamics Plot in Panama.

With 263 species in the first hectare, species diversity in Korup compares favorably with other Forest Dynamics Plots. For example, the average hectare in Thailand has 97 species, in Panama 172, in Peninsular Malaysia 495, in Sarawak 581, and in Ecuador 603. This relatively high species richness is largely due to the diversity of the small-sized trees. Trees between 1 and 10 cm dbh comprise 68% of the species in the KFDP, compared with only 47% in Panama.

A trait of particular importance for the ICBG drug screening program is speciosity – or number of species – of genera and families within a community. A successful 'hit' from one plant species often leads scientists to search for closely related species for testing. Speciosity within the Korup Forest Dynamics Plot compares favorably with other tropical forest sites. In the first hectare, early results indicate that, of 7502 individuals, there are at least 48 plant families (eight morphospecies have not yet been identified to family) and at least 132 genera (52 morphospecies have not yet been identified to genus). The most speciose genera in 16 ha of KFDP are *Cola* [Sterculiaceae] (18 species), *Trichoscypha* [Anacardiaceae] (12), *Rinorea* [Violaceae] (12), *Diospyros* [Ebenaceae] (11), *Garcininia* [Crusiaceae] (8), *Psychotria* [Rubiaceae] (8), *Drypetes* [Euphorbiaceae] (7), *Beilschiedia* [Lauraceae] (7), *Memecylon* [Melastomataceae] (7), and *Ouratea* [Ochnaceae] (5). The most speciose families are Rubiaceae (67), Euphorbiaceae (36), Sterculiaceae (24), and Caesalpiniaceae (23).

6. Ethnobotany

The high plant diversity – and consequently high potential diversity of phytochemicals – in the Korup area appears to be one of the reasons for the large number of medicinal plants used for traditional medicine. Of the 283 species collected in the first hectare of KFDP, we preliminarily identified economic uses for 187. Of these, 52% were identified as used by local communities, either for consumption within the household or for sale in local or national markets. Resources used include medicines, timber for planks, poles and carving, roof thatching, cordage and materials for baskets and construction, natural dyes, fuelwood, food plants, game, and plants used ceremonially. Of all categories of use, the most frequently cited was medicinal purposes, noted for 25%

of all species examined. However, of the 10 most abundant plant species in KFDP – accounting for almost half of the individuals in the first hectare (3541 individual trees) – only *Cola cauliflora*, which comprised 2.4% of all individuals, was used for medicinal purposes. A more complete evaluation of the uses needs to be done in conjunction with Associate Program 5.

7. Local research projects

A botany undergraduate from the University of Douala, under the supervision of Dr. Songwe, worked with the field team from mid-November through December, 1997 to study Korup tree species and KFDP inventory methods. KFDP is considering a plan to encourage students to work at the plot, and there are tentative plans for two university students to join the field station after the termination of this grant.

The plot contains a large quantity of seedlings of several species in the plot which could provide the opportunity for research projects for Cameroonian students on such topics as seedling mapping, density, distance from parent, and survival.

VII. MANAGEMENT ISSUES

A. Administration

1. SI/MAB

SI/MAB made arrangements to bring over a Nigerian scientist to analyze the data from the small biodiversity plots in Nigeria. A report will be published similar to the one completed in August 1997 for the biodiversity plot series in Cameroon. Plans are also being considered as to how the data sets from both plot series can be compared.

In 1998, Terry Sunderland attended meetings with SI/MAB to plan the activities for the next stages in the implementation of biodiversity monitoring plots in Cameroon and Nigeria. The location of plots in Cameroon will be linked to the 50-ha plot established by AP-1b, while the plots in Nigeria will provide the link with AP-5 ethnobotanical evaluations. In addition, work was initiated on the preparation of a manuscript based on the research conducted to date by AP-1a in Cameroon: Sunderland, T., J. A. Comiskey, and F. Dallmeier. *Quantitative ethnobotany in Cameroon: A comparison between logged and unlogged forests*.

2. CTFS Meetings

a. Meetings in Cameroon

Dr. Elizabeth Losos, CTFS Director, visited Douala, Cameroon, in March, 1996 and early November 1997 to meet with BDCPC Executive Committee members Drs. Thomas Tata, Johnson Jato, Tobias Mbenkum, Wawa Ngenge, and Prudence Galega, and KFDP staff Dr. Nicholas Songwe, Dr. George Chuyong, Mr. David Kenfack, and Mr. Julius Mbotiji. Dr. Duncan Thomas was also in attendance in most meetings. During her trips, Dr. Losos delivered a laser printer and authorized purchase of a desktop photocopier to duplicate field data sheets and printed material. Dr. Losos has also brought large, color decals of the ICBG, CTFS and BDCPC logos to place on the doors of the ICBG AP1 vehicle.

In 1996 and 1997, Dr. Richard Condit joined Dr. Thomas in Cameroon and traveled to Mundemba to meet with Korup Project staff and work on arrangements for the second year of data collection. At KFDP, Drs. Condit and Thomas checked quadrats and provided technical assistance in census techniques to the starting field teams. Afterward they returned to the Mundemba KFDP office and worked on data entry and analysis from the first hectare with Drs. Songwe and Chuyong, Mr. Kenfack, and Mr. Mbotiji.

The vice-president and executive director of BDCP-C and representatives from the Central African Regional Program for the Environment (CARPE) and USAID visited the Korup Forest Dynamic Plot from May 11-13, 1998. This visit provided the first opportunity for CARPE officials to see the field site in action and observe the forest. They reported that they were extremely impressed by the Korup Forest Dynamics Project and field staff and by BDCP-C.

Also in May, the Divisional Officer and other departmental heads for the Mundemba Center visited the site to attend a ceremony for the enumeration completion of the plot's first 25 ha. The Directing Officer remarked that he is pleased with the project as a whole, and urged the full support of the surrounding community for the project.

b. CTFS Network Meeting

David Kenfack, Nicholas Songwe, and George Chuyong all attended CTFS' network meeting, Forest Diversity and Dynamism: Results from the Global Network of Large-Scale Demographic Plots" from July 30 to August 1, 1998 in Washington D.C. A representative from BDCP-C also planned to participate in the CTFS network conference, but unfortunately had to decline at the last minute because of visa problems. Funding for the Cameroonians to come to the network meeting was provided in part by CARPE. Airline tickets for some of their travel were donated by Air France.

The aim of the meeting was to bring together researchers from around the world to share their findings and insights into Forest Dynamic Plot research. Over 100 people from 25 countries attended the 3-day conference, presenting over 50 papers on tropical forest dynamics, diversity, stand distribution, canopy biology, reproductive biology, conservation, and management. The Cameroonians participated in the CTFS Network meeting both formally and informally. Nicolas Songwe gave a general presentation on the Korup site as a whole. He focused on the weather patterns (Figure 2 and 3) and the high faunal diversity in the area. David Kenfack gave a presentation on the preliminary findings from the Korup Forest Dynamics Plot, focusing on the specific species, genera, and families with the highest abundance. The proceedings of the conference will be published as a book. All of the Cameroonians had many conversations with the individuals working at the Forest Dynamic Plots around the world, especially with those individuals working in the Democratic Republic of Congo. For example, Songwe discussed soil surveys with the geologists that have surveyed other plots, and is looking into the possibility of conducting a soil survey at Korup.

As the keynote event to the conference, a panel was held in the Smithsonian Castle on "Tool or Delay Tactic: The Role of Science in Addressing the Biodiversity Crisis and Climate Change", followed by a reception. The panel was co-sponsored by Smithsonian's Institute of Conservation Biology and CTFS. The panelist included Dr. Thomas Lovejoy (Smithsonian Institution and World Bank), Dr. Robert Watson (World

Bank and IPCC), Mr. Erik Lammerts van Bueren (Tropenbos Foundation, the Netherlands), and Dr. Stephen Hubbell (Princeton University and the Committee for the National Institutes of the Environment), and were introduced by the Smithsonian Provost Dennis O'Connor.

Approximately 140 people attended the panel and reception, representing a wide cross-section of Washington DC, including the academic community, environmental organizations, federal government, international development agencies, foundations, and forestry organizations. Conversation and debate were as lively after the panel discussion as during. Given that the some guests needed to be pushed out of the Smithsonian Castle long after the reception had officially ended, the event was judged a real success.

3. KFPD field leaders travel

In November 1996, prior to the start of field work at Korup, the field leaders George Chuyong and David Kenfack went to Ituri, Dem. Rep. Congo to participate in a training session hosted by the Centre de Formation et de Recherche en Conservation Forestiere (CEFRECOF), as CTFS collaborator. The purpose of the training was to familiarize the field leaders with survey methodology, protocols, data collection, and analysis.

In 1997, David Kenfack traveled to the US to do botanical work. See above for further details.

After the CTFS conference in August, 1998, Nicolas Songwe, David Kenfack, and George Chuyong joined many of the conference participants on a trip to Barro Colorado Island (BCI), the first Forest Dynamic Plot in the network. At BCI, they had the opportunity to study many of the neotropical plants in BCI's 50-ha plot with Dr. Richard Condit. Songwe, Kenfack, and Chuyong also visited Fort Sherman, a wetter habitat than BCI, to experience the forest canopy first hand in the fort's famous canopy crane. In addition to learning about the BCI and Fort Sherman, Songwe, Kenfack, and Chuyong also worked on their data and learned new computer programs, as mentioned above.

Following his visit to Panama, David Kenfack went to Oregon State University at Corvallis to visit Duncan Thomas, David Hibbs of OSU, and Jean-Remy Makana (Botany director of the Ituri Forest Dynamics Project in Congo and OSU graduate student). His trip was sponsored by CTFS and by OSU College of Forestry. In Corvallis he worked with Duncan Thomas planning the Korup Forest Dynamics Plot 1998/99 field season fieldwork and budget. David Hibbs showed Kenfack around the Forest Science Department, and there were several field excursions to the coniferous forests of western Oregon.

From Corvallis, Kenfack traveled to the Missouri Botanical Garden in St. Louis. This visit was sponsored by CTFS and by the Garden. The herbarium material from the KFDP had been sent ahead to Missouri, and was ready for comparison with the Garden's collection. Kenfack spent 10 days studying the material under the guidance of Roy Gereau.

4. Field reports

In-country Field Director Dr. N. Songwe has submitted informative and complete quarterly reports since inception of KFDP in January 1997. These reports are accompanied by statements of revenue and expenditures, original receipts, and monthly salary disbursement report, which are prepared by Julius Mbotiji, Project Assistant. In addition, an informal AP1 update is distributed to project staff by the CTFS Washington office approximately every quarter.

5. KFDP camp and office

Three laptop computers with Visual FoxPro software were transferred to KFDP for use in data entry and finances. The KFDP office also received a laserjet printer and will purchase a desktop photocopier to duplicate field data sheets and printed material. A desktop computer for the KFDP office was recently ordered, and will be used primarily for data entry. This equipment will remain with BDCPC at the completion of the ICBG project. A vehicle was also bought for the project.

6. Resubmission to ICBG

In January 1998 AP1 re-submitted with Walter Reed and BDCPC to the ICBG consortium to request continued funding for plot enumeration, plant collection, database development, and training, as well as application of analyses for sustainable forest management and harvesting protocols for economically valuable species. We sought the completion and recensus of the 50-ha Korup Forest Dynamics Plot, the establishment of additional small biodiversity plots, and another series of training courses. We also proposed to hold a joint AP1 meeting at the end of the grant cycle in Africa for evaluation and dissemination of results. In August 1998, we learned that our proposal was accepted. Starting September 1, we will receive five more years of funding.

7. New partnership with CARPE

The ICBG initiative has as one of its goals the leveraging of financial and scientific resources to improve the state of biodiversity conservation in the Central African region. To this end, CTFS has developed a collaborative relationship with the Central African Regional Program for the Environment (CARPE). CARPE is a USAID initiative whose members include, among others, Biodiversity Support Program, World Resources Institute, World Wildlife Fund, and the U.S. Forest Service. The program focuses in the forests of the Congo Basin to reduce deforestation, improve management of forest resources, conserve biodiversity, and inform and involve Central Africans for effective decision-making in these areas. The countries of overlap where both CARPE and CTFS have ongoing projects are Cameroon and the Democratic Republic of Congo.

As a result of CARPE's interest in using the baseline information generated by KFDP to address critical issues related to forest management and conservation, CARPE has agreed to financially support the shortfall beyond ICBG funds needed in 1998 to complete the first 25 ha of the plot. In addition, CARPE provided partial funding for a few Cameroonians working at KFDP to attend CTFS' network-wide meeting researchers this summer in Washington, DC. Furthermore, CARPE is funding an anthropological study of households in and around Korup to assess the determinants of forest use in the

area. This socioeconomic survey will be supervised by Dr. Ricardo Godoy, an anthropologist at the University of Florida, Gainesville, and conducted by Rod Stubina, an anthropology doctoral student at the University of Florida. Rod Stubina plans to begin his research in September 1998.

B. Budget

Dr. Losos, Sasha Silver, and Shallin Busch assisted by Drs. Thomas, Songwe, and Condit, have created and monitored project budgets, reported to ICBG, administered funds transfers between Smithsonian and BDCPC, and purchased supplies for delivery to Cameroon. In Cameroon, Julius Mbotiji, Project Assistant, has in-country administrative responsibility under Dr. Songwe for distribution of field funds and keeping expense records for quarterly reports.

The Final Financial Report for AP1 is attached to this report. There was no remaining balance for the ICBG grant (including deduction of SI indirect costs) as of the end of August. As a shortfall of funds is projected for KFDP, CARPE has provided an additional $36,665 to support the field expenses of this project (see above).

VIII. Conclusion

The scientific results from the KFDP and the continuation of the SI/MAB plot series are the preliminary foundation for the valuable data set that will arise from this project. The preliminary findings have been drawn on family, genus, and species abundance provide the preliminary insight into the character of the forest. With the further censusing of the plot, the depth of our understanding will strengthen greatly. Thus, final conclusions on biodiversity conservation in Cameroon and Nigeria must wait until the KFDP plot and SI/MAB 1-ha plot series have been completed and, ideally, recensused at least once.

The project was also a success in terms of collaboration and networking. As a result of the many conferences and visits that occurred, the Cameroonian scientists will be able to achieve a higher standard of work at an elevated pace. The meetings also provided an opportunity for the KFDP personnel to learn about new projects that will enhance the information discovered by the initial tree census.

Figure 1. Topographic map of the surveyed 25 ha of KFDP made by Drs. Condit, Songwe, and Chuyong and Mr. Kenfack.

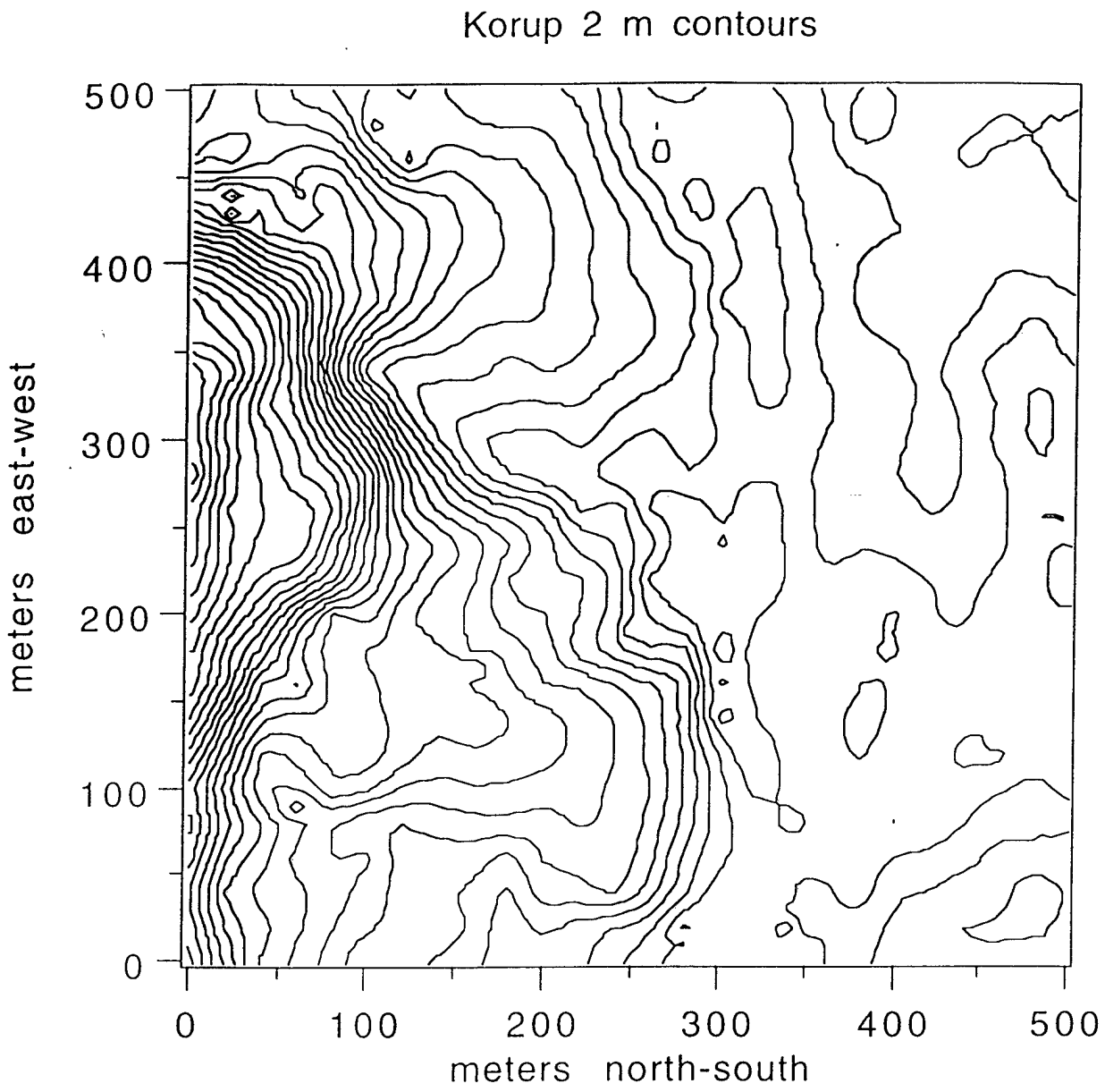

Figure 2 Overhead on monthly rainfall in the Korup forest presented by Dr. Songwe at the CTFS network conference.

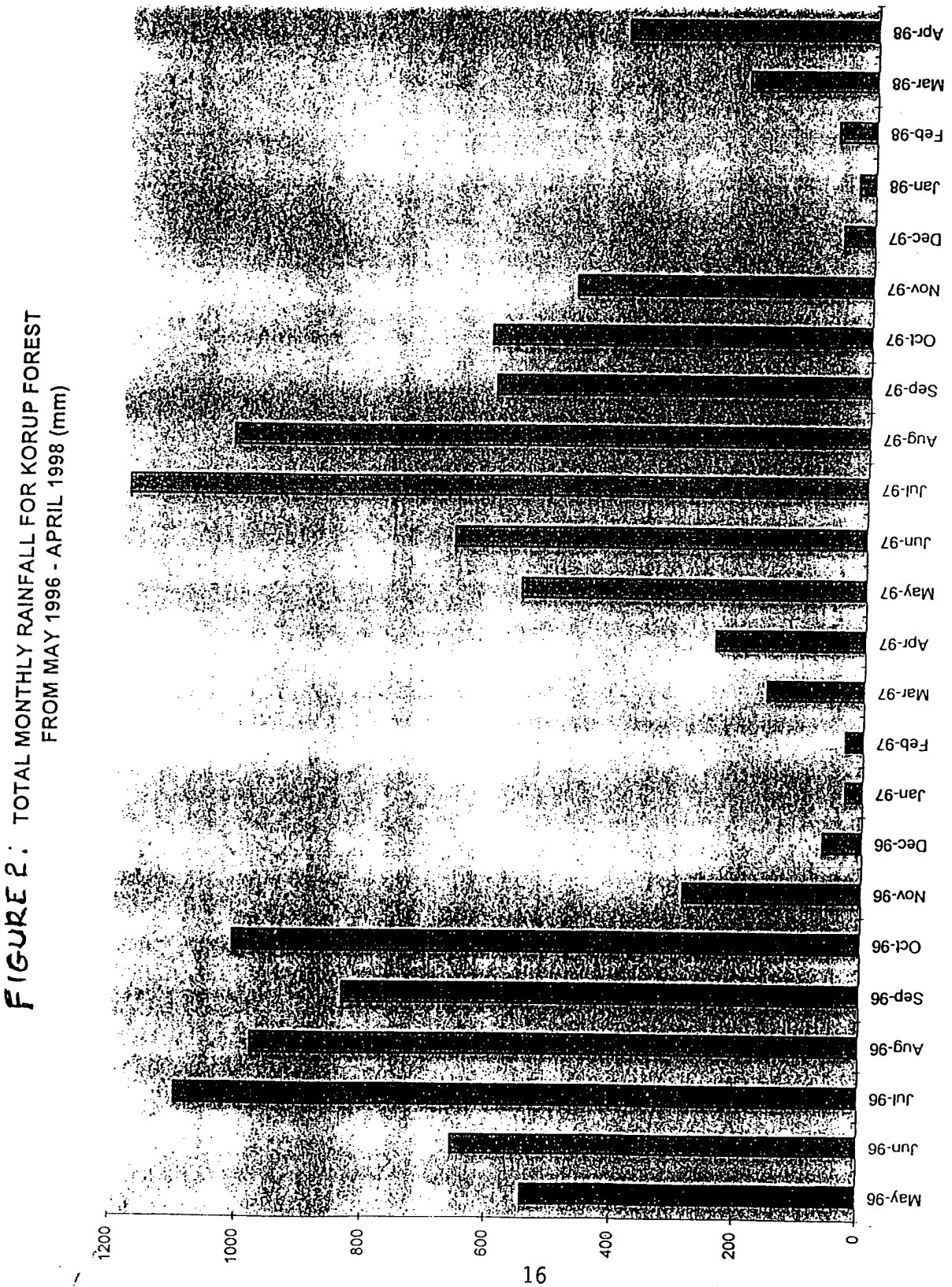

Figure 3 Overhead on maximum and minimum temperature in the Korup forest presented by Dr. Songwe at the CTFS network conference.